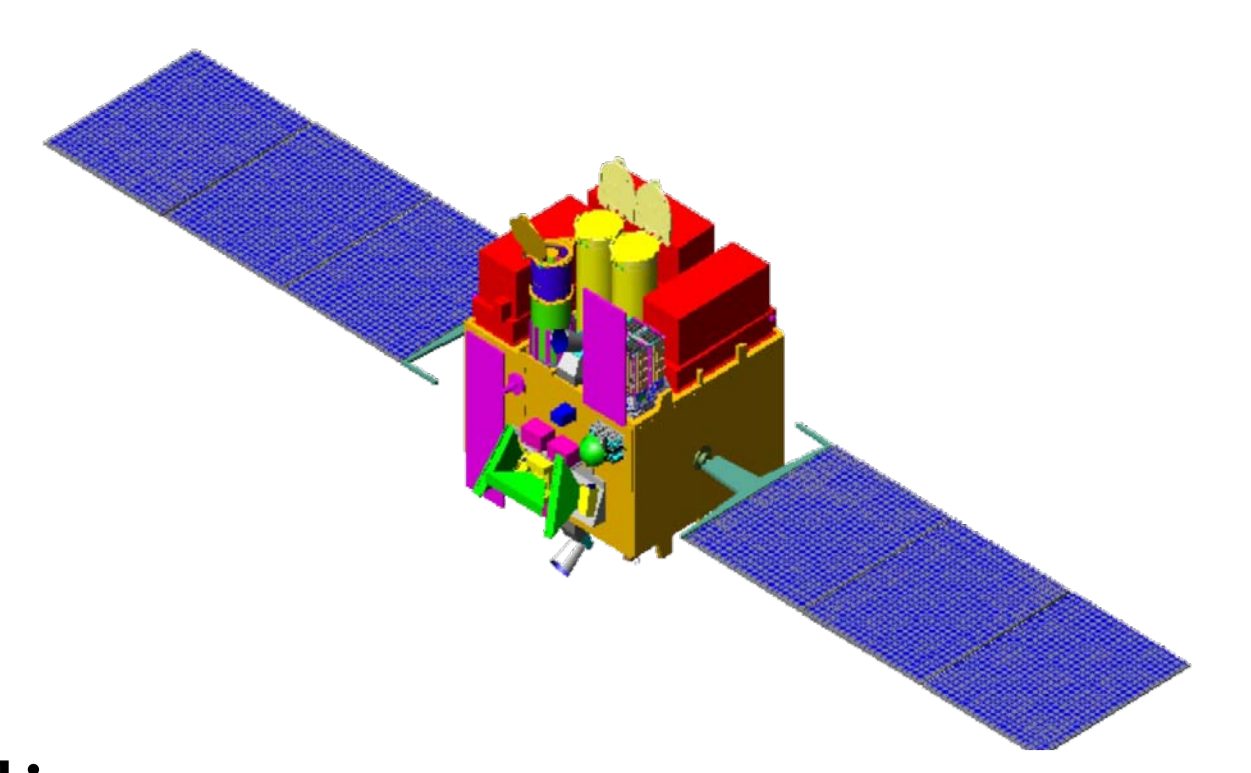
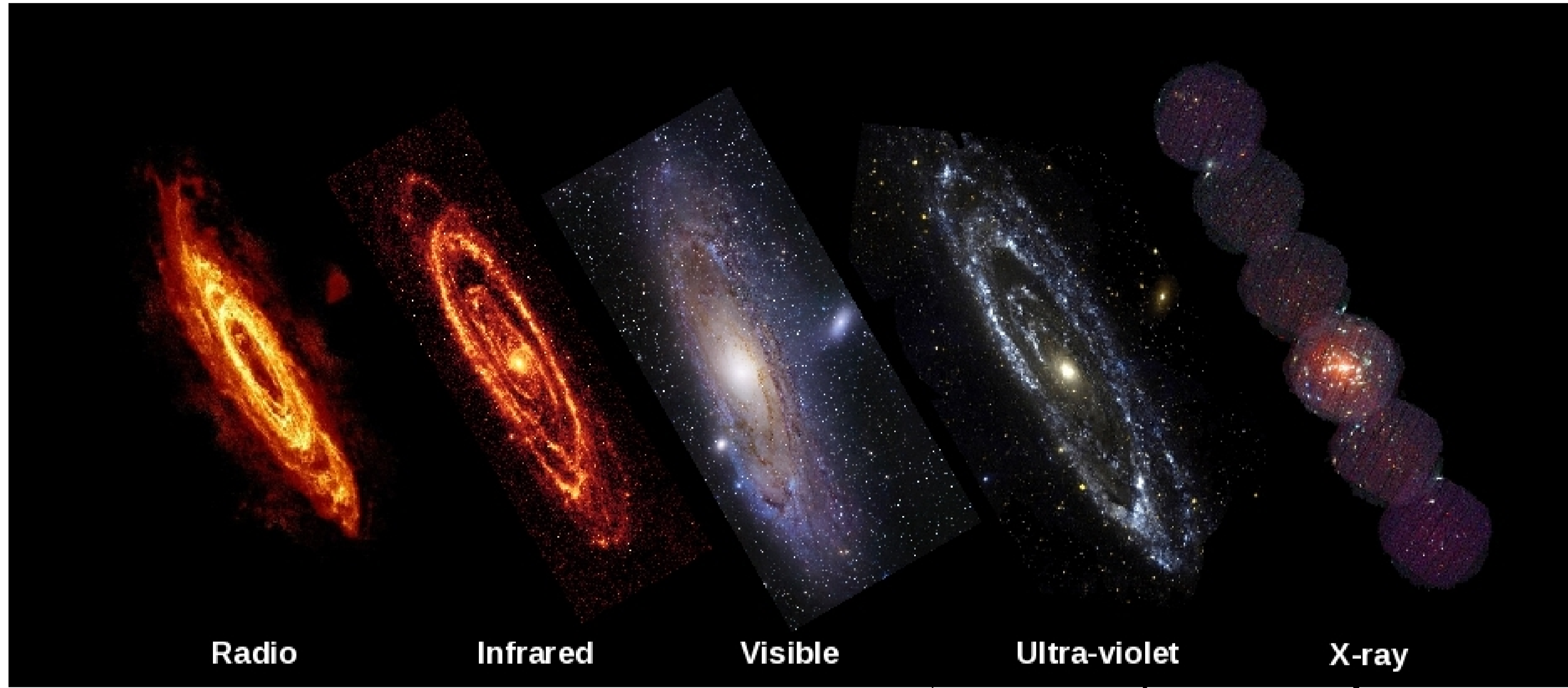




# ASTROSAT



Astrosat is India's first dedicated Astronomy satellite and is scheduled to launch on board the Polar Satellite Launch Vehicle (PSLV). It is a multiwavelength astronomy mission and will go round the earth in a low inclination equatorial orbit. It is mainly aimed at studying accreting Neutron stars and black hole sources simultaneously in different wave bands. This "simultaneous" study is important since such sources are highly time varying. We need to "see" them at different wave bands at the same time.



**ASTROSAT observational bands**

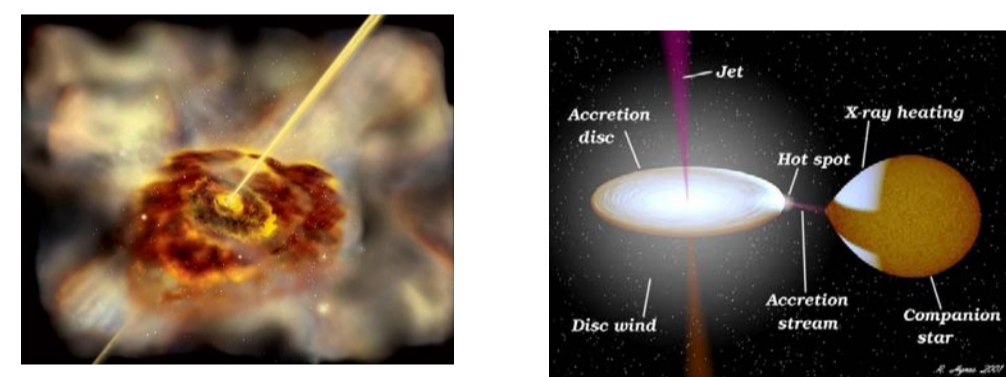
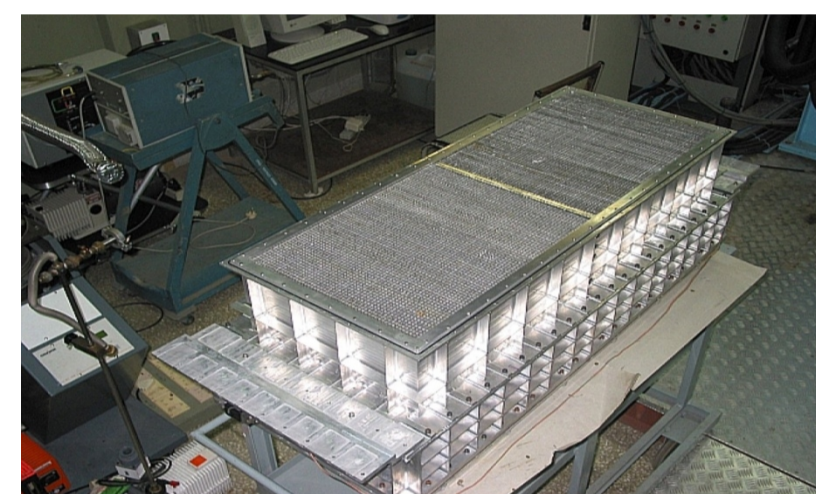
## Simultaneous Multi-wavelength Observation

The adjoining figure is that of a galaxy taken at different wavebands. Astrosat is going to record similar images and spectra of highly variable X-ray sources like Active Galactic Nuclei (AGN) and X-ray binaries, simultaneously in multiple wavebands.

### LAXPC

(X-ray timing & spectral)

For X-ray timing and low resolution spectral studies over a broad energy band (3-80 keV) ASTROSAT will use a cluster of 3 co-aligned identical Large Area X-ray Proportional Counters (LAXPCs), each with a multi-wire-multi-layer configuration and a field of view of  $1^\circ \times 1^\circ$



Prospective Targets:

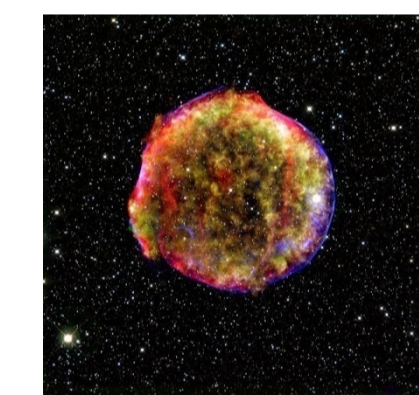
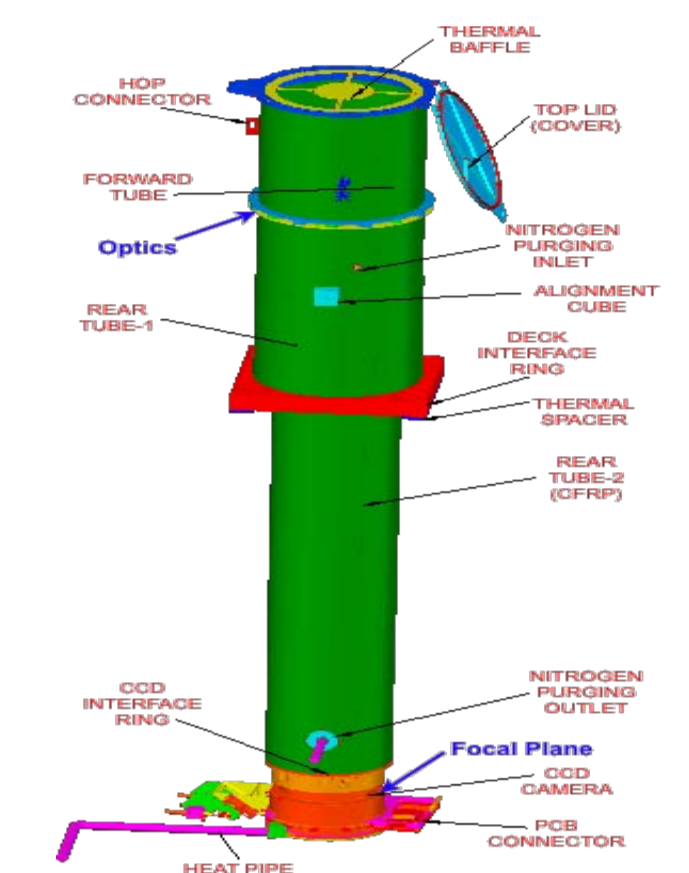
**Accreting black hole/neutron stars**

Active galactic nucleus  
X-ray binary stars  
(an artist's impression)

### SXT

(X-ray imaging)

The Soft X-ray Telescope (SXT) will perform X-ray imaging in 0.3-8.0 keV, using deep depletion Charge Coupled Device (CCD) camera. The CCD will be operated at a temperature of about  $-80^\circ\text{C}$

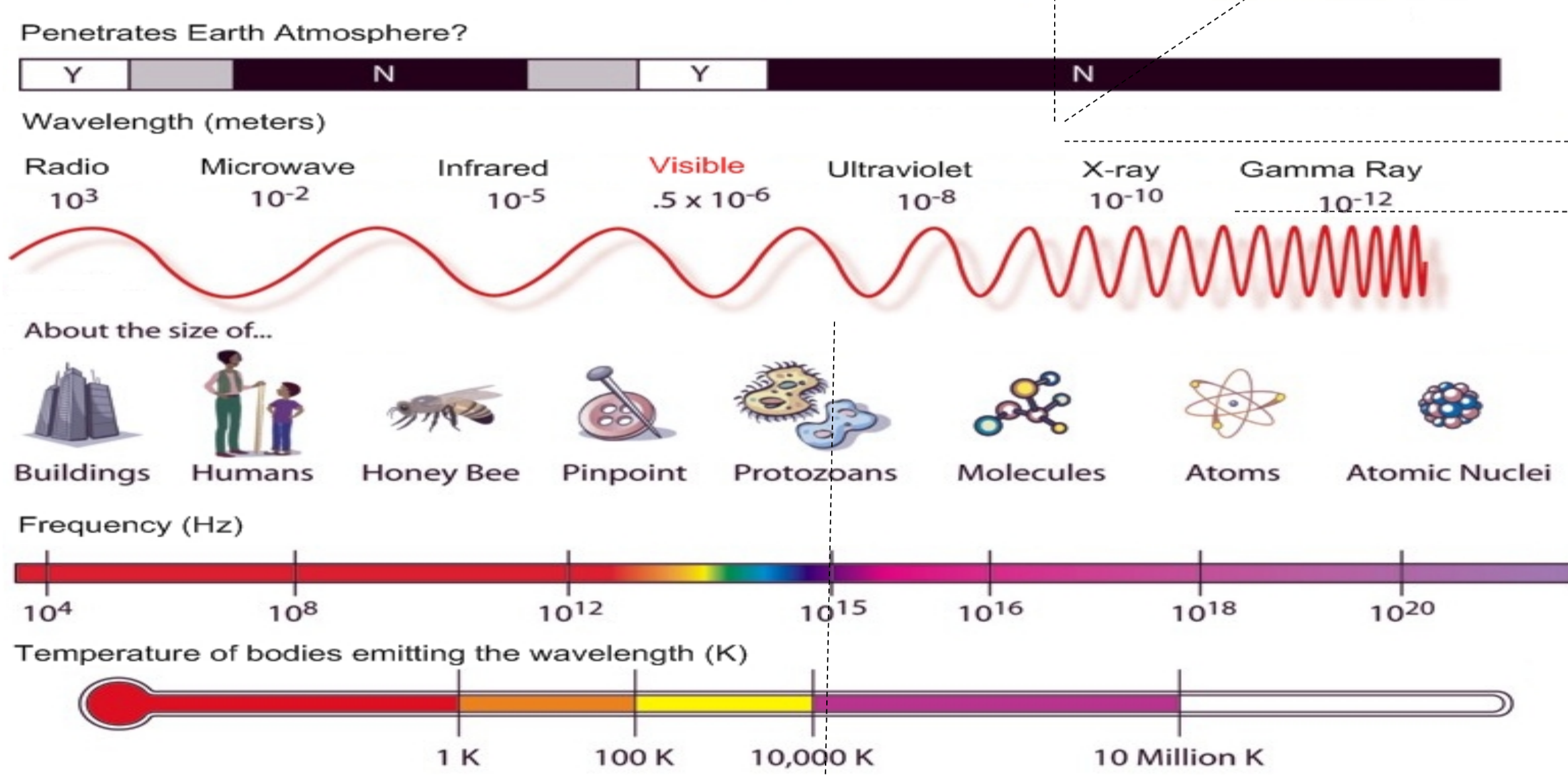


Supernova Remnant Galaxy clusters

Prospective Targets:

**Accreting White dwarfs, X-ray binaries, AGNs, etc**

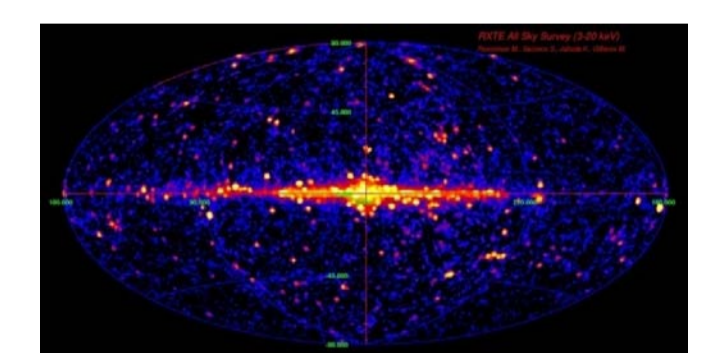
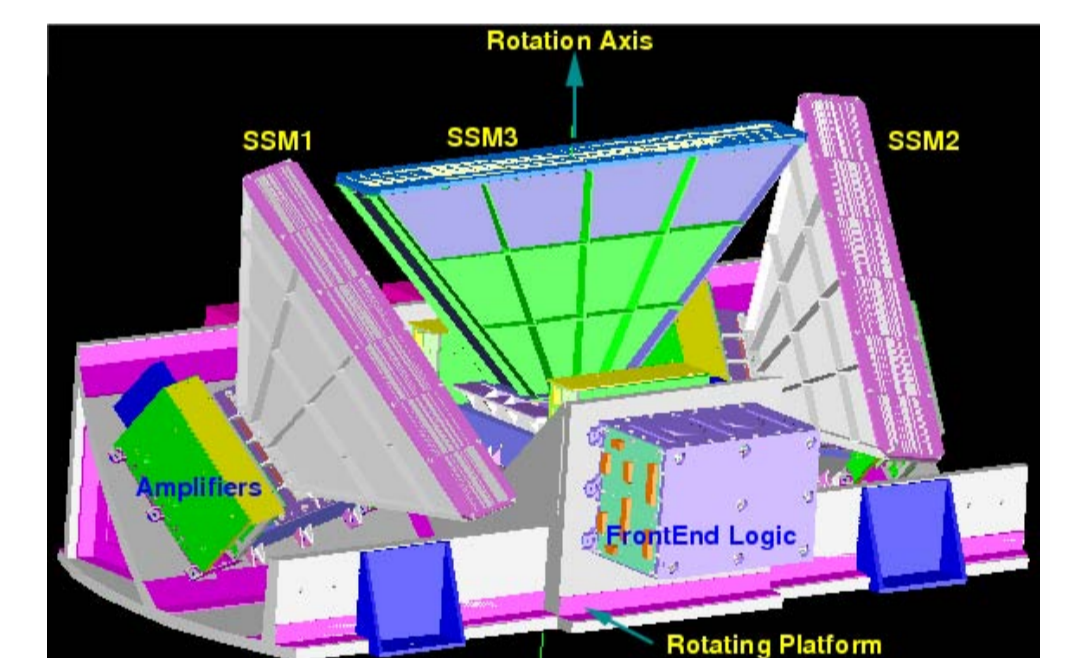
### The Electromagnetic Spectrum



### SSM

(soft X-ray, scanning the sky)

The Scanning Sky Monitor will consist of three position sensitive proportional counters, from which intensity variations of X-ray sources will be derived.



The Rossi X-ray Timing Explorer (RXTE) all sky map.

Prospective Targets:

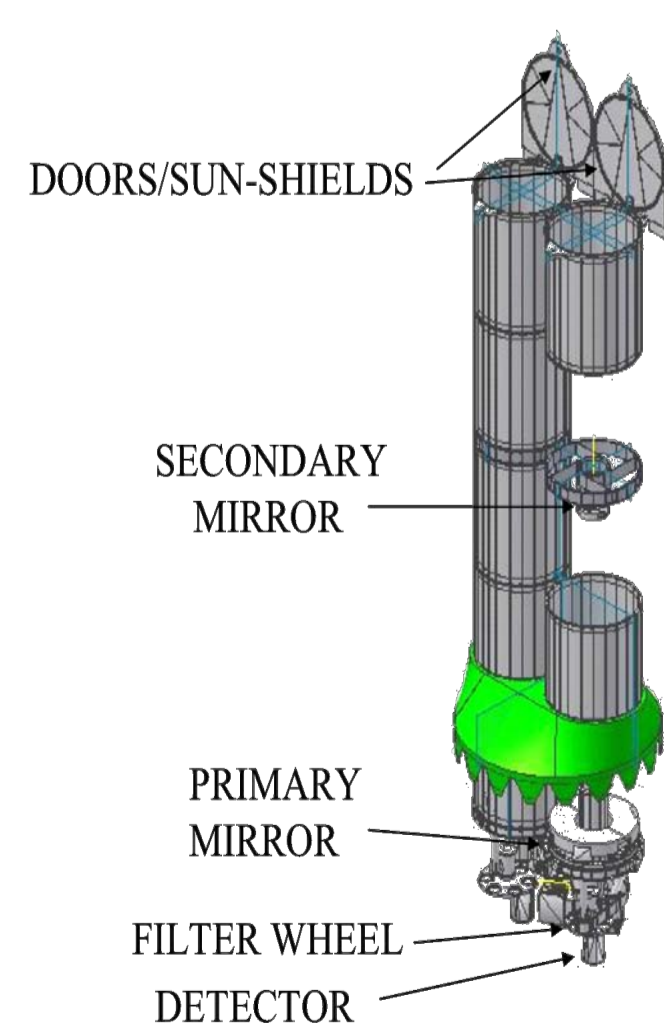
**Transient X-ray sources**

### UVIT

(UV & optical imaging)

The Ultra-Violet Imaging Telescope will perform imaging simultaneously in 3 bands of U.V spectrum. There are two telescopes. One for Far UV (130-180nm) and other for simultaneous imaging in Near UV (180-300nm) and Visible (320-500nm).

CONFIGURATION OF UVIT



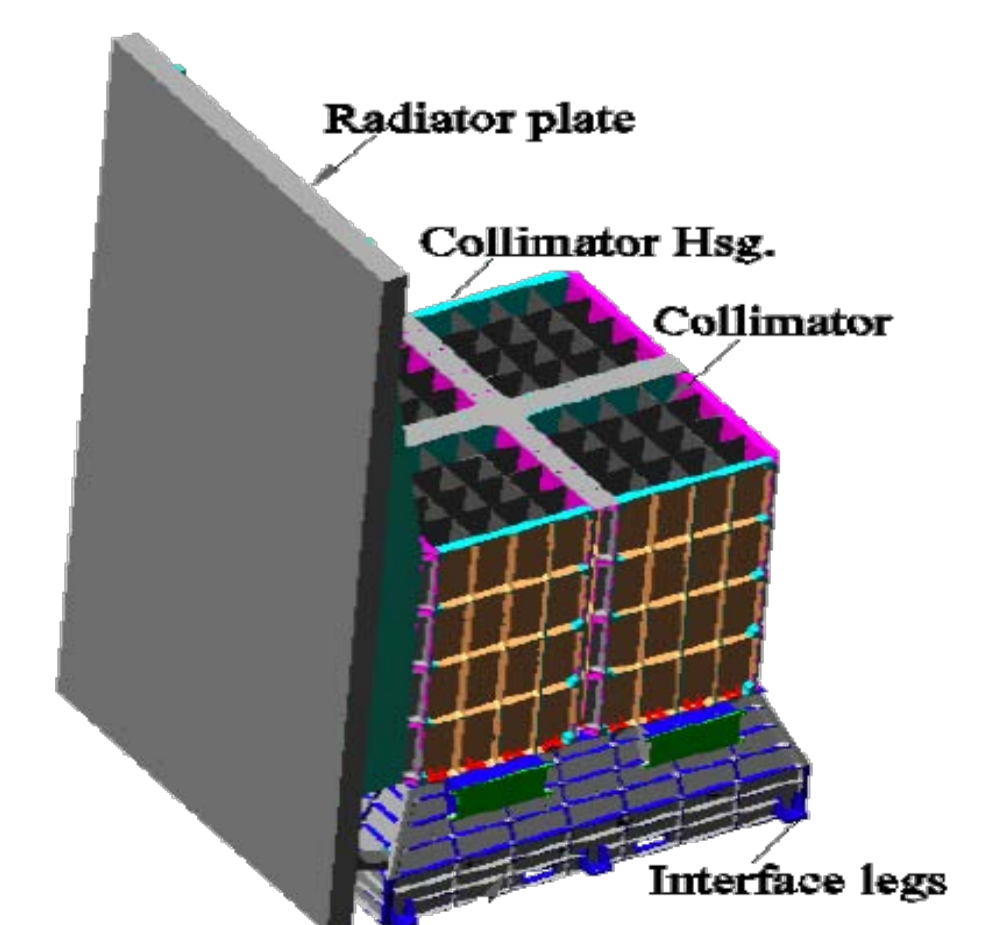
The Coma cluster

Prospective Targets:  
**Galaxies in nearby Universe.**  
**Active Galaxies**

### CZTI

(Hard X-ray imager)

ASTROSAT will carry a hard X-ray imager in the form of CZTI. It will consist of a Pixellated-Cadmium-Zinc-Telluride detector array. It is mainly for imaging purposes in hard X-ray.



Gamma Ray Burst (an artist's impression)

Prospective Targets:

**AGNs, Nonthermal sources, Gamma-Ray Bursts**